



Case Study

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Sherburne EnviRock and EcoBlend

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Sherburne EnviRock, a wholly owned subsidiary of 2KF, Inc., initiated production of manufactured, lightweight aggregate in 2001 intended for use in the concrete masonry block market. A year later, Sherburne EnviRock added production of EcoBlend, a concrete mineral admixture also intended for use in concrete masonry. After an intensive research and development period, 2KF's Sherburne EnviRock and EcoBlend products appear to be headed for successful commercialization.

Challenge

Primary feedstock for both products is coal combustion spray dryer residue purchased from Xcel Energy's Sherburne County Unit 3 Generation Facility (Sherco #3). Fly ash produced in Sherco #3 is used as a sorbent in its spray dryer scrubber. This process results in approximately 340,000 tons per year of a fine white powder that resembles a Class C fly ash but with sulfur levels 3 times higher than conventional concrete fly ashes. Xcel Energy's challenge was to obtain high-value uses for this high-sulfur ash. This challenge was especially daunting since conventional wisdom suggests that high sulfur content implies significant concrete durability and setting problems.

Market Entry – Sherburne EnviRock and EcoBlend

2KF was incorporated as a holding company whose primary assets were technologies to produce a cold-process, lightweight concrete aggregate (comparable to ASTM C-331) and a concrete mineral admixture (alternative to ASTM C-618 fly ashes). 2KF financed its Sherburne EnviRock and EcoBlend production facility through a combination of debt and investor equity. No government or private aid or grants were solicited, nor was any investment or key personnel obtained from traditional concrete product producers or suppliers.

EnviRock and EcoBlend were initially introduced to highly traditional, risk-adverse, standards-driven, and conservative markets. In its local Twin Cities market, oligopoly structures with long-standing supplier relationships are prevalent. Negligible use of lightweight aggregates in masonry, historically brutal business tactics, soft pricing, and demand conditions created depressed market conditions.

Immediately after 2KF initiated production, facility design and construction errors led to delivery delays and fed market concerns about product quality and performance. Following resumption of production, 2KF did not consistently satisfy overly optimistic product quality, pricing, and delivery terms. It was further apparent that 2KF needed to acquire the ability to “coach” block producers on how to use lightweight aggregates.

2KF listened to the market and adapted its production accordingly. The growth pattern indicates that 2KF should use all 340,000 tons per year of Sherco #3 spray dryer residue within a few years. 2KF learned market development should have been emphasized at the start. For Xcel Energy, the essential lesson is “patience, patience, patience.”

Submitted by:

Michael Thomes
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401-1993
Telephone: (800) 328-8226



This coal ash utilization case study is a selection of the Coal Combustion Product Partnership. For more information, consult the C2P2 web site at <http://www.epa.gov/epaoswer/osw/conserves/c2p2/>